

Applicant: BÖDICKER et al.
Application No.: 09/870,386
Examiner: T. Lu

Remarks

Claims 40-58 are presented for the Examiner's review and consideration. Claims 40 and 47 have been amended. Applicants believe the claim amendments and the accompanying remarks herein serve to clarify the present invention and are independent of patentability. No new matter has been added.

35 U.S.C. §102 Rejection based on Hilton

Claims 40-58 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,452,416 to Hilton ("Hilton"). For the reasons set forth below, Applicants respectfully submit that this rejection should be withdrawn.

Hilton discloses an image display system which can display a series of images on at least one monitor. Once an image is displayed, a control panel is provided which includes an image manipulation icon that can be clicked or otherwise selected to manipulate the displayed image. However, Hilton fails to disclose that the image can be manipulated prior to display, or that the system can be pre-programmed to display an image having a particular manipulation.

Applicants disagree with the interpretation of Hilton's working palette specification as shown in Figure 6. As disclosed in Hilton, the format specification, columns two through six of Table 63, include a MODE column, identifying the monitor or series mode of presentation, a MATRIX column setting forth the number of rows and columns in the display containers, and a COUPLE column specifying whether the coupling function is invoked for synchronization of two or more image series in a series mode of presentation. (Col. 9, Ins. 25-19).

However, the seventh column is part of the physician's entries. Each referring physician entry includes a set of functions specified by the identified referring physician which are to be executed when a radiologist indicates that examination of an image group is completed by pressing a DONE button. (Col. 9, Ins. 15-19). As such, each of the entries in the seventh column are instructions to be performed by the radiologist after display of the image and not a pre-programming sequence which is performed prior to display of the images.

In contrast, the present invention relates to the field of screening of medical cases, and

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more specifically to a method, apparatus and computer system, which has a user interface to facilitate the screening. (Page 1). It is an object of the present invention to provide a method and a computer system for screening of medical cases with a user interface which allows the radiologist to focus his or her attention to the review of the medical cases without distraction of attention due to the complexity of the user interface. (Page 2). These and other objects and advantages are achieved by a method and a system that utilizes a user interface enabling a user to pre-program a typical sequence of images to be reviewed in the workflow of the screening procedure of a number of medical cases. (Id.) The pre-programming is advantageously achieved by means of symbols or icons being provided by a graphical user interface. (Id.)

An individual icon can specify a certain view and/or a certain image processing algorithm to be performed, activate the marking of a region of interest (ROI) or the entering of a diagnosis/annotation, or activate the display of computer assisted diagnosis (CAD) markers. (Page 3). This way a sequence of icons results that specifies the sequence of images to be rendered, including images for prompting a user action, images for inputting an annotation and/or another sequence of actions, and images resulting from an image processing operation to be performed for the screening of an individual medical case. (Id.). After the pre-programming of the sequence has been done by the user, the user can start the screening process. (Id.)

As such, the present invention discloses an icon which can be used for pre-programming a series of images. An individual icon can be used to select an image view and an imaging processing. After the pre-programming is complete, the user starts the viewing process. This is different from Hilton, which first displays an image and then allows a user to manipulate the image. In fact, with Hilton, all images of the image sequence need first to be displayed before they can be transformed by manually clicking on respective image manipulation icons as shown in FIGURE 3.

As an image manipulation or transformation can take a considerable amount of time, especially in case of a more complex transformation type, this results in a considerable waiting time for the radiologist and a large number of manual input actions in order to specify a desired image manipulation function. This is both time consuming and ergonomically disadvantageous. Further, it requires a large amount of processing power in order to limit the processing time for

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performing a desired image transformation function while the radiologist is waiting for the result of the transformation at the computer monitor.

The present invention avoids this prior art problem. Independent claim 40 recites, *in part*, providing a user interface with a set of icons, each individual icon representing a specification (i) for a designation of a particular view of an image of the group of images and (ii) for the processing thereof, and preprogramming a sub-set of the set of icons into a preselected order corresponding to the serially arranged data fields of the common workflow by the user selecting the sub-set of icons and the order. Independent claim 47 recites analogous elements.

As claimed, the present invention enables pre-fetching of consecutive images into the image cache, including computer generated images that are the result of a desired image transformation. Pre-fetching of images, including the transformed computer generated images into the image cache further increases the system throughput while making maximal usage of the available data processing capacity of the system.

Another advantageous feature of the invention is that the pre-programming of the sequence can be performed by a non-expert user via the set of icons provided on the user interface. This is in contrast to Hilton, in which the sequence is determined by an application process (see Hilton, col. 5, lns. 57-67).

In light of the foregoing, independent claims 40 and 47 are respectfully submitted to be patentable over Hilton. As claims 41-46 and 56-58 depend from claim 40 and claims 48-55 depend from claim 47, these dependent claims necessarily include all the elements of their respective base claim. Accordingly, Applicants respectfully submit that the dependent claims are allowable over Hilton at least for the same reasons.

Conclusion

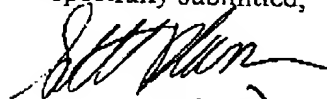
In light of the foregoing remarks, this application is now in condition for allowance and early passage of this case to issue is respectfully requested. If any questions remain regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

No fee is believed to be due. However, please charge any required fee (or credit any

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overpayments of fees) to the Deposit Account of the undersigned, Account No. 500601 (Docket No. 739-X01-003).

Respectfully submitted,

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